Picea mariana / Ledum groenlandicum / Sphagnum spp. Forest (Black Spruce / Labrador Tea Poor Swamp)

COMMON NAME	Black Spruce / Labrador-tea / Peatmoss species Forest
SYNONYM	***Black Spruce / Labrador Tea Poor Swamp***
PHYSIOGNOMIC CLASS	Forest (I)
PHYSIOGNOMIC SUBCLASS	Evergreen forest (I.A)
PHYSIOGNOMIC GROUP	Temperate or subpolar needle-leaved evergreen forest (I.A.8)
PHYSIOGNOMIC SUBGROUP	Natural/Semi-natural (I.A.8.N)
FORMATION	Saturated temperate or subpolar needle-leaved evergreen forest (I.A.8.N.g)
ALLIANCE	PICEA MARIANA SATURATED FOREST ALLIANCE

CLASSIFICATION CONFIDENCE LEVEL 2

USFWS WETLAND SYSTEM TERRESTRIAL

RANGE

Voyageurs National Park

This type is most common in the northern parts of the park, where peatlands are more extensive, but can be found throughout the park.

Globally

This community is found in northern Michigan, northwestern Ontario, northern Minnesota, northern Wisconsin, and southeastern Manitoba. This community is rare in Michigan.

ENVIRONMENTAL DESCRIPTION

Voyageurs National Park

This type is found in confined peatland basins, on the upland margins of large peatlands, in poorly drained depressions in bedrock, and removed from the water's edge on peatland shorelines. The substrate is deep, acidic Sphagnum peat that is mineral poor. Hummock and hollow microtopography is moderately to well developed. The water regime is saturated.

Globally

This type is found in confined peatland basins, on the upland margins of large peatlands, in poorly drained depressions in bedrock, and removed from the water's edge on peatland shorelines. Stands occur on level, wet sites with organic soils (Zoladeski *et al.* 1995). The substrate is deep, acidic Sphagnum peat that is mineral poor (M. Smith personal communication). Hummock and hollow microtopography is moderately to well developed. Water regime is saturated.

MOST ABUNDANT SPECIES

Voyageurs National Park

Stratum	Species
Tree canopy	*Picea mariana, Larix laricina*
Tall shrub	*Picea mariana, Alnus incana, Betula pumila*
Short shrub	*Ledum groenlandicum, Chamaedaphne calyculata*
Forb	*Maianthemum trifolium*
Graminoid	*Carex trisperma*
Nonvascular	*Sphagnum* spp.

Globally

Stratum	Species
Tree canopy	*Picea mariana*
Short shrub	*Ledum groenlandicum*
Graminoid	*Carex trisperma*
Nonvascular	*Sphagnum* spp.

CHARACTERISTIC SPECIES

Voyageurs National Park

Picea mariana, Larix laricina, Alnus incana, Ledum groenlandicum, Carex trisperma, Sphagnum spp.

Globally
Picea mariana, Ledum groenlandicum, Carex trisperma, Sphagnum spp.

VEGETATION DESCRIPTION
Voyageurs National Park
This community includes both woodland and forested examples, so canopy cover is widely variable. *Picea mariana* trees dominate this type and are typically 10-20 m tall in the forested stands and 5-10 m tall in the woodland stands. Scattered *Larix laricina* trees are occasionally present, and it may occur as a co-dominant (25-75% cover) in some stands. The canopy, especially in the woodland phase, tends to be uneven aged. Shrub strata are usually absent, though *Picea mariana* saplings may be present at low cover, as can *Alnus incana* or *Betula pumila*. The dwarf-shrubs *Ledum groenlandicum* and *Chamaedaphne calyculata* are nearly always present, but cover is highly variable, ranging from 20-90%. Cover of dwarf-shrubs tends to be higher in the more open stands. Other ericaceous shrubs such as *Kalmia polifolia, Andromeda polifolia,* and *Vaccinium oxycoccos* can also be present at low cover. The herbaceous strata is species poor and present at low density, usually less than 40% cover. The most widespread species are *Carex trisperma* and *Maianthemum trifolium*. Scattered minerotrophic species may also be present, most commonly *Carex lacustris, Iris versicolor* and *Monotropa uniflora*. Sphagnum moss typically covers nearly 100% of the forest floor. The most abundant species are *Sphagnum magellanicum, Sphagnum recurvum sensu lato, Sphagnum capillifolium,* and *Sphagnum russowii.* In the more mixed *Picea mariana-Larix laricina* stands, nutrient levels may be higher. The herbaceous layer is moderately species rich and usually comprises 10-40% cover. *Maianthemum trifolium* and *Carex trisperma* are the most widespread herbaceous species. Other common species include *Menyanthes trifolia, Carex paupercula, Calamagrostis canadensis, Carex leptalea, Rubus pubescens,* and *Potentilla palustris*. Sphagnum moss typically occupies 90-100% of the forest floor. The most abundant species are *Sphagnum magellanicum, Sphagnum recurvum sensu lato, Sphagnum warnstorfii*, and *Sphagnum fuscum. Calliergon cordifolium* and/or *Calliergon giganteum* may colonize the wet hollows.

Globally
The overstory of this community is made up of conifers. The tree canopy is broken to closed over a moderately well developed low shrub layer, sparse herbaceous layer, and a carpet of mosses (Kurmis *et al.* 1986). The canopy is often pure *Picea mariana*, but *Larix laricina* may be a codominat. *Abies balsamea* can be present to codominant, and the occasional *Pinus banksiana* may occur (Sims *et al.* 1989). The shrubs are primarily ericaceous and include *Chamaedaphne calyculata*, *Gaultheria hispidula*, *Kalmia polifolia*, *Ledum groenlandicum*, and *Vaccinium* spp, but mixed spruce-tamarack stands can contain *Alnus incana* or *Betula pumila*. The few herbaceous species found in this community include *Carex lasiocarpa, Carex trisperma*, *Clintonia borealis*, *Coptis trifolia*, *Cornus canadensis*, and *Maianthemum trifolium*. Occasional minerotrophic indicators found in northern Minnesota include *Carex lacustris, Iris versicolor,* and *Monotropa uniflora* (M. Smith personal communication 1999). Mosses, particularly *Sphagnum* spp. typically cover nearly 100% of the forest floor. *Dicranum polysetum*, *Sphagnum* spp. (including *Sphagnum magellanicum, Sphagnum recurvum sensu lato, Sphagnum capillifolium*, *Sphagnum russowii*), and *Pleurozium schreberi* are among the species found in this abundant moss layer (Sims *et al.* 1989, Harris *et al.* 1996).

CONSERVATION RANK G5.

DATABASE CODE CEGL002454

COMMENTS
Voyageurs National Park
Diagnostic features of the type are a forested or woodland canopy of *Picea mariana* with or without *Larix laricina.* This community is found in confined peatland basins, on the upland margins of large peatlands, in poorly drained depressions in bedrock, and removed from the water's edge on peatland shorelines. Minerotrophic species may be present. This type is analogous to Ontario's W27 and W28 (Harris *et al.* 1996). In some cases, this community closely resembles more nutrient poor examples of the the Black Spruce Bog (CEGL002485). The Black Spruce/Labrador Tea Poor Swamp will generally contain more minerotrophic indicators than the Black Spruce Bog. Position on the landscape, however, is the best way to distinguish these types. The Black Spruce Bog is found only in the interior of large peatlands whereas the Black Spruce/Labrador Tea Poor Swamp is found in confined basins, shores, and the margins of large peatlands. Where *Larix laricina* exceeds 75%, stands should be placed in the Northern Tamarack Rich Swamp type (CEGL002471).

REFERENCES

Harris, A. G., S. C. McMurray, P. W. C. Uhlig, J. K. Jeglum, R. F. Foster, and G. D. Racey. 1996. Field guide to the wetland ecosystem classification for northwestern Ontario. Ontario Ministry of Natural Resources, Northwest Science and Technology, Thunder Bay, Ontario. Field guide FG-01. 74 p.

Kurmis, V., S. L. Webb, and L. C. Merriam. 1986. Plant communities of Voyageurs National Park, Minnesota, U.S.A. Can. J. Bot. 64:531-540.

Minnesota Natural Heritage Program. 1993. Minnesota's native vegetation: A key to natural communities. Ver. 1.5. Minn. Dep. Nat. Resour., Nat. Heritage Prog. St. Paul, Minn. 110 p.

Sims, R. A., W. D. Towill, K. A. Baldwin, and G. M. Wickware. 1989. Field guide to the forest ecosystem classification for northwestern Ontario. Ontario Ministry of Natural Resources.

Zoladeski, C. A., G. M. Wickware, R. J. Delorme, R. A. Sims, and I. G. W. Corns. 1995. Forest ecosystem classification for Manitoba: field guide. Natural Resources Canada, Canadian Forest Service, Northwest Region, Northern Forestry Center, Edmonton, Alberta. Special Report 2.

Note:
This association is found in two different map classes:

1) Black Spruce – Labrador Tea Poor Swamp (evergreen phase)
2) Black Spruce – Labrador Tea Poor Swamp (mixed phase)